RehabMove 2018: FEASIBILITY OF OBJECTIVE ARM-HAND ACTIVITY FEEDBACK APPLIED VIA A WRIST-WORN DEVICE IN STROKE PATIENTS

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PURPOSE: To develop a wrist-worn activity tracker that stimulates arm-hand use after stroke by objective feedback, we evaluated the feasibility of different forms of feedback applied via a wrist-worn activity tracker in stroke patients.

METHODS: Six stroke patients (5 males, 1 female; age: 58.2±18.2 yrs; 1 month - 5 years post stroke) participated in this pilot study. A semi-structured interview was performed to evaluate the feasibility of vibrotactile feedback and visual feedback applied via a wrist-worn activity tracker on the more affected arm. During the interview participants wore an activity tracker on the wrist of the more affected arm. To evaluate the feasibility of vibrotactile feedback, participants experienced for approximately ten seconds a series of short lasting vibrotactile triggers. Visual feedback was evaluated by showing ficticious activity feedback on the display of the wrist-worn activity tracker.

RESULTS: Five out of six patients were able to feel the vibrotactile trigger applied to the more affected arm. These five patients also accepted the vibrotactile trigger. All six patients were able to read and understand the ficticious activity feedback shown on the display of the wrist-worn activity tracker. Furthermore, all patients preferred the combination of vibrotactile and visual feedback over a single form of feedback.

CONCLUSIONS: The results of this pilot study indicate that vibrotactile feedback and visual feedback applied via a wrist-worn activity tracker are feasible in stroke patients and should be combined to stimulate arm-hand use after stroke.